

DNA sequence comparison of the wild type "gag" gene (Seq.ID2) against the codon-optimized "gag" gene (Seq.ID5).

SeqID2	1	ATGGGCCAAACTATAACTACCCCTTGAGCCTCACCCCTCAACCACTGGTCTGAGGTTGAG
SeqID5	1	""""""G""C""C""C""""C""""""G""""G""""""AGC""""G""
SeqID2	61	GCACGGGCCCGTAATCAGGGTGTGCGAAGTCCGGAAAAAGAAATGGATTACACTGTGTGAA
SeqID5	61	""CA""""A"G""C""""C""G""G""GA""""G""""G""""C""C""""C""G
SeqID2	121	GCCGAATGGGTAATGATGAATGTAGGTTGGCCCCGAGAAGGAACTTTCACCATTGACAAT
SeqID5	121	""""G""""G""""""C""G""C""""A"G""G""C""C""""""C""""C
SeqID2	181	ATTTACAGGTCGAGGAGAGAATCTTCGCCCGGGGCCATATGGACACCCAGATCAAATC
SeqID5	181	""CAGC""""G""""""G""""""C""C""C""C""C""""C""C""G""
SeqID2	241	CCTTATATTACCACGTGGAGATCCCTAGCCACAGACCCCCCTCCATGGGTTGCCCCATTG
SeqID5	241	""C""C""C""""C""""GAG""G""""C""""""C""C""""GA"G""C""
SeqID2	301	CTACCCCTCCTAAGCATCCCAGGACAGATCCTCCCGAGCCTCTTTCGCCGCAACCTCTT
SeqID5	301	""G""""C""C""""C""""""C""C""C""""C""GAGC""C""G""C""G
SeqID2	361	GCGCCGCAACCC_TC_TTCCCCCA_CCCCGTCTCTACCCCGTTCTCCCCAAACCAGAC
SeqID5	361	""C""C""G""AG"GCC""""T"AG"AG""G""""G""G""G""G""C""
SeqID2	418	CCCCCAAGGCGCCTGTATTACCACCCAATCCTTCTTCCCCTTTAATTGATCTCTTAACA
SeqID5	421	""""""C""C""GC"G""C""""C""CAGCAG""CC"G""C""C""GC"G""C
SeqID2	478	GAAGAGCCACCTCCCTATCCTGGGGGTCACGGGCCAACACCGCCGTGAGGCCCTAGAACC
SeqID5	481	""G""""C""C""""C""C""C""C""C""C""C""C""CAGC""C""G""
SeqID2	538	CCAACTGCCTCCCCGATTGCCATCCGGCTGCGAGAACGACGAGAAAATCCAGCTGAGAAA
SeqID5	541	""C""C""AG""C""C""""G"A""""A"G""GA"GA"G""G""C""C""C""G
SeqID2	598	TCTCAAGCCCTCCCCTTAAGGGAAGACCCAAACAACAGACCCAGTACTGGCCATTCTCG
SeqID5	601	AGC""G""""G""C""G""""G""""C""""G""""""C""""AGC
SeqID2	658	GCCTCTGACCTGTACAATTGGAAATTGCATAA_CCCCTTTCTCCAGGACCCAGTGGC
SeqID5	661	""AGC""""""C""""GC""C""C""""""_AG""""""C""""
SeqID2	717	CCTAACTAACCTAATTGAGTCCATTTTAGTGACACATCAGCCAACCTGGGACGACTGCCA
SeqID5	720	""G""C""""G""C""AG""CC"G""""C""C""""C""""""
SeqID2	777	ACAGCTCTTACAGGCTCTCCTGACGGCAGAGGAGAGACAAAGGGTCCTCCTTGAAGCCCG
SeqID5	780	G""""GC"G""C""G""C""C""C""""G""G""""G""G""G""G""A"
SeqID2	837	AAAGCAAGTTCAGGCGAGGACGGACGGCCAACCCAGCTGCCCAATGTGCGTTGACGAGGC
SeqID5	840	G""""G""G""C""""""CA""""C""""""C""G""G""""
SeqID2	897	TTTCCCCTTGACCCGTCCCAACTGGGATTTTTGTACGCCGGCAGGTAGGGAGCACCTACG
SeqID5	900	C""""C""""A"G""""C""C""C""C""C""C""C""C""""""GA"
SeqID2	957	CCTTTATCGCCAGTTGCTGTTAGCGGGCTCCGCGGGGTGCAAGACGCCCCACTAATTT
SeqID5	960	G""G""CA"G""C""C""C""G""C""C""GA"G""C""C""C""GA"G""C""C""CC"
SeqID2	1017	GGCACAGGTAAAGCAAGTTGTACAAGGAAAGAGGAAACGCCAGCCTCATTCTTAGAAAG
SeqID5	1020	""C""""G""""G""G""G""G""C""G""""G""A""C""AGC""C""G""G""
SeqID2	1077	ATTAAAAGAGGCTTACAGAATGTATACTCCCTATGACCCTGAGGACCCAGGGCAGGCTGC
SeqID5	1080	GC"G""G""""C""""G""""C""C""C""C""C""C""C""C""""CA"
SeqID2	1137	TAGTGTTATCCTGTCTTTTATCTACCACTCTAGCCCGGACATAAGAAATAAGTTACAAAG
SeqID5	1140	C""C""G""""AG""C""""AGC""C""C""C""G""C""C""G""G""G"

SeqID2	1197	GCTAGAAGGCCTACAGGGGTTCACTGTCTGATTTGCTAAAAGAGGCAGAAAAGATATA
SeqID5	1200	""G""G""""G""""C""""C""AGC""CC""G""G""""C""G""""C""
SeqID2	1257	CAACAAAAGGGAAACCCAGAGGAAAGGGAAGAAAGATTATGGCAGCGGCAGGAAGAAAG
SeqID5	1260	""""G""""G""A""C""""G""""G""G""GC""G""""A""""G""G""
SeqID2	1317	AGATAAAAAGCGCCATAAGGAGATGACTAAAGTTCTGGCCACAGTAGTTGCTCAGAATAG
SeqID5	1320	G""C""G""A""G""C""""C""G""G""""C""G""G""""C""G""G""C""C""C""
SeqID2	1377	AGATAAGGATAGAGGGGAAAGTAACTGGGAGATCAAAGGAAAATACCTCTGGGGAAAGA
SeqID5	1380	G""C""""C""G""C""G""C""G""""C""C""G""""G""C""C""C""G""
SeqID2	1437	CCAGTGTGCCTATTGCAAGGAAAAGGGACATTGGGTTGCGGATTGCCCCGAAACGACCCCG
SeqID5	1440	""""C""""C""""G""""C""C""""GA""G""C""""C""GA""G""A""
SeqID2	1497	GAAGAAACCCGCCAACTCCACTCTCCTCTAA
SeqID5	1500	""""G""""""AG""C""G""G""G"

DNA sequence comparison of the wild type „env“ (gp70 region from Seq.ID1) against the codon- and signal optimized „env“ gene (gp70; Seq.ID8).

REPLACEMENT SHEET

SeqID11	1201	ACCCCATGCATTTCCATGGCGGTGCTCAATTGGACCTCTGATTTTTGTGTCTTAATCGAA
SeqID8	1201	"C"
SeqID11	1261	TTATGGCCCAGAGTGACTTACCATCAACCCGAATATGTGTACACACATTTGCCAAAGCT
SeqID8	1261	"G"
SeqID11	1321	GTCAGGTTCCGAAGAGAACCAATATCACTAACGGTTGCCCTTATGTTGGGAGGACTTACT
SeqID8	1321	"G"
SeqID11	1381	GTAGGGGGCATAGCCGCGGGGTCGGAACAGGGACTAAAGCCCTCCTTGAAACAGCCTGA
SeqID8	1381	"G"

Fig. 6 DNA sequence comparison of the wild type „env“ gene (Seq.ID1) against the codon- and signal optimized „env“ gene (gp85) (Seq.ID7).

SeqID1	1	ATGGAAAGTCCAACGCACCCAAAACCTCTAAAGATAAGACTCTCTCGTGGAACCTTAGCG
SeqID7	1	" " " " "GTCC" "C" "C" " " " " "G" " " " " "C" "G" " " " " "C" "G" "C" " " " " "A" "G" "T"
SeqID1	61	TTTCTGGTGGGGATCTTATTACAATAGACATAGGAATGGCCAATCCTAGTCCACACCAA
SeqID7	61	" "C" " " " " " " "C" " " "C" "G" " " "C" " " "C" "T" " " " " "T" " "C" " " " " " " "C" " "CTCC" "C" "C" "GG
SeqID1	121	ATATATAATGTAACCTTGGGTAATAACCAATGTACAACTAACACCCAAGCTAACGCCACC
SeqID7	121	" "C" " "C" " " " "G" "C" " " " " "G" "C" " " " " " "G" " "G" "C" " " " " " "G" "C" " "T" " " " " "
SeqID1	181	TCTATGTTAGGAACCTTAACCGATGCCTACCCCTACCTACATGTTGACTTATGTGACCTA
SeqID7	181	" " " " "C" "G" " "C" " " "C" "G" "A" " " " "A" " " " "C" " " " "G" " " " "G" " " "C" "G" " " " " " "G"
SeqID1	241	GTGGGAGACACCTGGGAACCTATAGTCCTAAACCCCAACCAATGTAAAACACGGGGCACGT
SeqID7	241	" " " " "G" " " " " " " " " " "G" " "C" "TCCG" "G" " " " " "C" " " " " " "G" "G" "T" " " " "CA" "G"
SeqID1	301	TACTCCTCCTCAAAATATGGATGTAAAACCTACAGATAGAAAAAACAGCAACAGACATAC
SeqID7	301	" " " " " " " " " " "C" " "G" " " " " "C" " "C" "G" "C" " " " " "C" "G" "G" "G" " " "G" " " " " "C" " " "
SeqID1	361	CCCTTTTACGTCTGCCCGGACATGCCCCCTCGTTGGGGCCAAAGGGAACACATTGTGGA
SeqID7	361	" " " " "C" "T" "G" " " " " "T" " "C" " " " " " " " " " " "CC" " " " "C" " "C" " " " " " "C" " "C" " " " " "G"
SeqID1	421	GGGGCACAAGATGGGTTTTGTGCCGCATGGGGATGTGAGACCACCGGAGAAGCTTGGTGG
SeqID7	421	" " " " "C" "G" " " " " "C" " "C" " " " "T" "C" " " " " "C" " " " "A" " " " "A" "G" "G" "C" " " " " "
SeqID1	481	AAGCCCACCTCCTCATGGGACTATATCACAGTAAAAAGAGGGAGTAGTCAGGACAATAGC
SeqID7	481	" " " " " " " " " " "C" " " " " " " " " " "C" " " " " " "G" "G" "G" "CTCCTCC" " " " " " " "CTC"
SeqID1	541	TGTGAGGGAAAATGCAACCCCTGGTTTTGCAGTTCACCCAGAAGGGAAGACAAGCCTCT
SeqID7	541	" " " " " " "C" " "G" " " " " " " " " " " "G" " " " " " " " " " " " " " " "C" "G" "G" " " " "C"
SeqID1	601	TGGGACGGACCTAAGATGTGGGGATTGCGACTATACCGTACAGGATATGACCCTATCGCT
SeqID7	601	" " " " "T" "C" " "C" " " " " " " " " " " "CC" "A" "G" "G" " "A" "G" " " " " "C" " " " " " "C" "T" " "C"
SeqID1	661	TTATTACGGGTGTCCCGGCAGGTATCAACCATTACGCCGCCTCAGGCAATGGGACCAAAC
SeqID7	661	C"G" " " " "A" " " " " "A" " " " "G" "C" " " " " "C" " "C" " "C" " " " "C" " " " " "C" " " " "C" " " "
SeqID1	721	CTAGTCTTACCTGATCAAAAACCCCATCCCGACAATCTCAAACAGGGTCCAAAGTGGCG
SeqID7	721	" "G" "GC" "G" " " " " "C" " "G" "G" " " " "C" " " "A" "G" "G" "C" " "G" " " " " "C" " " " " "G" " " " "C"
SeqID1	781	ACCCAGAGGCCCCAAACGAATGAAAGCGCCCCAAGGTCTGTTGCCCCCACCACCATGGGT
SeqID7	781	" " " " " " " " " " "G" "C" " " " " "GTCT" " " " " " "C" " " " " " "G" " " " " " " " " " " " " " "C"
SeqID1	841	CCCAAACGGATTGGGACCGGAGATAGGTTAATAAATTTAGTACAAGGGACATACCTAGCC
SeqID7	841	" " " " "GA" " " " " " "C" " "A" "G" "C" " " "C" "G" "C" " "CC" "G" "G" "G" "C" " "C" " " " " "G" " " "
SeqID1	901	TTAAATGCCACCGACCCCAACAAAACCTAAAGACTGTTGGCTCTGCCTGGTTTCTCGACCA
SeqID7	901	C"G" " " " " " "A" " " " " " " " " " "G" " "C" "G" " " " "C" " " " " "G" " " " " " "G" " "CA" "G" "C"
SeqID1	961	CCCTATTACGAAGGGATTGCAATCTTAGGTAACCTACAGCAACCAACAAACCCCCCCCCA
SeqID7	961	" " " " "C" "T" "G" "C" " " " " "C" " " "C" "G" "C" " " " " " "TC" " " " " " "G" "C" " _" " " " " " " "C"
SeqID1	1021	TCCTGCCTATCTACTCCGCAACACAACTAACTATATCTGAAGTATCAGGGCAAGGAAT
SeqID7	1020	C" " " " " " "G" "C" " "C" "C" "G" " " " " "G" " "G" "C" " "C" " " " "G" "G" "T" "C" "G" "C" " "
SeqID1	1080	GTGCATAGGGACTGTTCTCTAAACCCACCAAGGCTTTGTGCAATAAGACACAACAGGGACA
SeqID7	1080	" " " " "T" "C" "A" "G" "C" "G" " " " " " " " " " "CC" " " " " " "C" " " " " "C" " "G" " " " "C" " "
SeqID1	1140	TACAGGGGGCGCACTATCTAGCCGCCCCCAACCGCACCTATTGGGCCTGTAACTACTGGACT
SeqID7	1140	C" " " " " " "C" " " " " "C" "G" "T" "T" " " " " "T" " " " " " "C" " " " " " "C" " " " " "A" "C" " "

SeqID1	1200	CACCCCATGCATTTCATGGCGGTGCTCAATTGGACCTCTGATTTTTGTGTCTTAATCGA
SeqID7	1200	G""""C""""C""""T""""G""C""""C""""GC"G""T"
SeqID1	1260	ATTATGGCCCAGAGTGACTTACCATCAACCCGAATATGTGTACACACATTTTGCCAAAGC
SeqID7	1260	GC"G""""G""""C""""C""G""T""G""""C""""G""
SeqID1	1320	TGTCAGGTTCCGAAGAGAACCAATATCACTAACGGTTGCCCTTATGTTGGGAGGACTTAC
SeqID7	1320	""G""""A"G"G"G"C"C"C"G"A"G""G""C""G"C"G"
SeqID1	1380	TGTAGGGGGCATAGCCGCGGGGGTTCGGAACAGGGACTAAAGCCCTCCTTGAAACAGCCCCA
SeqID7	1380	A"G""""T"T"T""G"C""C"G""G"G""""
SeqID1	1440	G TTCAGACAAC TACAAATGGCCATGCACACAGACATCCAGGCCCTAGAAGAATCAATTAG
SeqID7	1440	""""""""""G""G""
SeqID1	1500	TGCCTTAGAAAAGTCCCTGACCTCCCTTTCTGAAGTAGTCTTACAAAACAGACGGGGCCT
SeqID7	1500	C""T""""A""""C""""C""""A""""
SeqID1	1560	AGATATTCTATTCTTACAAGAGGGAGGGCTCTGTGCCGCATTGAAAGAAGAATGTTGCTT
SeqID7	1560	""""C""""A""""A""""T""
SeqID1	1620	CTATGCGGATCACACCGGACTCGTCCGAGACAATATGGCCAAATTAAGAGAAAGACTAAA
SeqID7	1620	T""A""""T"A""""T""T""T""T""T""
SeqID1	1680	ACAGCGGCAACAAC TGTTTGACTCCCAACAGGGATGGTTTGAAGGATGGTTCAACAAGTC
SeqID7	1680	""""""""""
SeqID1	1740	CCCCTGGTTTACAACCCTAATTTCCTCCATTATGGGCCCCCTTACTAATCCTACTCCTAAT
SeqID7	1740	""""C""""T""""G""T""G""""
SeqID1	1800	TCTCCTCTTCGGCCCATGCATCCTTAACCGATTAGTACAATTGTAAGACAGAATATC
SeqID7	1800	""""G""G""""""""
SeqID1	1860	TGTGGTACAGGCTTTAATTTTAACCCAACAGTACCAACAGATAAAGCAATACGATCCGGA
SeqID7	1860	G""""A""C""G""""""""
SeqID1	1920	CCGACCATGA
SeqID7	1920	""""""